Listing of Claims:

1. (Original) A semiconductor package, comprising:

a semiconductor chip having a plurality of first thermal fins on a non-active surface of the semiconductor chip, wherein the first thermal fins longitudinally extend across the non-active surface of the semiconductor;

a heat conducting device having a plurality of second thermal fins on a mating surface of the heat conducting device, wherein the second thermal fins longitudinally extend across the mating surface of the heat conducting device; and

a thermal joint formed between the non-active surface of the semiconductor chip and the mating surface of the heat conducting device, the thermal joint comprising a plurality of interdigitated thermal fins separated by a compliant thermally conductive material, wherein the interdigitated thermal fins comprise the first and second thermal fins, and wherein a gap size between the interdigitated thermal fins of the thermal joint varies across the thermal joint.

2. (Original) The semiconductor package of claim 1, wherein thermal joint comprises a plurality of bands of interdigitated thermal fins, wherein the gap size between the interdigitated thermal fins of the thermal joint is varied across the thermal joint by maintaining a fixed gap size between interdigitated thermal fins in each band, while providing a different fixed gap size between interdigitated thermal fins in different bands.

3. (Original) The semiconductor package of claim 2, wherein the gap size between interdigitated thermal fins is varied in each of the bands by maintaining the interdigitated thermal fins in all bands at same fixed width, while providing a different pitch between the first thermal fins and corresponding second thermal fins forming the interdigitated thermal fins in different bands.

4. (Original) The semiconductor package of claim 2, wherein the gap size between interdigitated thermal fins is varied in each of the bands by maintaining a fixed pitch between the first thermal fins and between the corresponding second thermal fins forming the interdigitated thermal fins in all the bands, while providing a different width of the interdigitated thermal fins in different bands.

5. (Original) The semiconductor package of claim 2, wherein the thermal joint comprises a first band of interdigitated thermal fins that provides a thermal conductivity between the semiconductor chip and heat conducting device which is greater than that thermal conductivity provided by other bands of interdigitated thermal fins, and wherein the first band is orientated to extend in a direction that passes through a neutral stress point of the semiconductor package.

6. (Original) The semiconductor package of claim 5, wherein the interdigitated thermal fins in the first band are separated by a first gap size, G1, which is smaller than all other gap sizes between interdigitated thermal fins in the other bands of interdigitated thermal fins.

7. (Original) The semiconductor package of clam 5, wherein the first band of interdigitated thermal fins is orientated to extend in a direction that passes through a hot spot area of the semiconductor chip and the neutral stress point of the semiconductor package.

8. (Original) The semiconductor package of claim 1, wherein a TCE (thermal coefficient of expansion) of a material forming the heat conducting device is about 3 times or greater than a TCE of a material forming the semiconductor chip.

9. (Original) The semiconductor package of claim 1, wherein the semiconductor chip is formed of silicon, and wherein the heat conducting device is formed of copper.

10. (Original) The semiconductor package of claim 1, wherein the heat conducting device is a package lid, a package cap, a heat sink, a cooling plate, or a thermal hat.

11. (Original) The semiconductor package of claim 1, wherein the compliant thermally conductive material comprises a thermal paste and has a thickness of about 25 microns or greater.

12. (Original) The semiconductor package of claim 1, wherein the compliant thermally conductive material comprises a thermal fluid and has a thickness of about 5 microns or greater.

13. (Original) The semiconductor package of claim 1, wherein a height of the first and second thermal fins is about 500 microns or less.

14. (Original) The semiconductor package of claim 1, wherein a height of the first and second thermal fins is less than or equal to about 300 microns.

15. (Original) The semiconductor package of claim 3, wherein the fin width is less than or equal to about 250 microns.

16. (Original) The semiconductor package of claim 3, wherein the fin width is less than or equal to about 150 microns.

17. (Original) The semiconductor package of claim 4, wherein the pitch between the first thermal fins, and the pitch between the second thermal fins, is less than or equal to about 500 microns.

18. (Original) The semiconductor package of claim 4, wherein the pitch between the first thermal fins, and the pitch between the second thermal fins, is less than or equal to about 350 microns.

19. (Original) The semiconductor package of claim 1, wherein gaps are formed in one or more of the first thermal fins, the second thermal fins, or both, to enable flow of the compliant thermally conductive material in the thermal joint due to movement of the interdigitated thermal films caused by expansion and contraction of the semiconductor chip and heat conducting device.

20. (Original) The semiconductor package of claim 19, wherein a density of gaps formed in the one or more first and/or second thermal fins increases toward edge regions of the semiconductor chip.

21. (Original) The semiconductor package of claim 1, wherein the thermal joint comprises air spaces above the first or second thermal microfins to provide vertical mechanical compliance.

22. (Previously Presented) A MCM (multiple chip module) package, comprising:

a package substrate;

a plurality of semiconductor chips mounted face down on the package substrate; and

a heat conducting device that is thermally coupled to each semiconductor chip using an associated thermal joint connection disposed between a non-active surface of the semiconductor chip and the heat conducting device,

wherein each thermal joint connection comprises a band of thermal fins formed by a plurality of longitudinally extending parallel interdigitated thermal fins separated by a compliant thermally conductive material, and

wherein each thermal joint connection is disposed such that each corresponding band of thermal fins is orientated to extend in a direction towards a common point of the package substrate, the common point corresponding to a neutral stress point of the semiconductor package, and such that the corresponding band of thermal fins for two or more thermal joint connections are orientated to extend in non-parallel directions towards said common point.

23. (Previously Presented) The MCM package of claim 22, wherein the interdigitated thermal fins of each thermal joint connection comprises a plurality of first thermal fins formed on the non-active surface of the semiconductor chips, which are mated with a plurality of second thermal fins formed on the heat conducting device.

24. (Original) The MCM package of claim 22, wherein the heat conducting device is a package lid, a package cap, a heat sink, a cooling plate, or a thermal hat.

25. (Original) The MCM package of claim 22, wherein heat conducting device is formed of copper.

26. ~ 32 (Canceled)

33. ~ 40. (Canceled)